UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA

April 25, 2019

Paul Stoick, Acting Lead Remedial Project Manager
US Department of the Navy
33000 Nixie Way, Bldg 50
San Diego, CA 92147

Dear Mr. Stoick:

Thank you for providing for review the Navy's November 2, 2018, draft final *Parcel G Removal Site Evaluation Work Plan*, Hunters Point Naval Shipyard, San Francisco, California ("Work Plan"). The U.S. Environmental Protection Agency (EPA) has reviewed this document, and a final set of comments about technical details are attached. In earlier comments, EPA has requested certain changes to the overall structure/approach for soil and buildings, and we anticipate that the Navy will make associated forthcoming revisions to relevant portions of the Work Plan. We may have additional comments on these in the future. I also appreciate receiving on April 17, 2019, the *Draft Parcel G Removal Site Evaluation Work Plan Addendum.* We will submit comments on this document separately.

We appreciate that the revised version of the Work Plan indicates that the Navy made significant changes to adopt the recommendations of EPA and State of California regulatory agencies. Once we resolve several remaining issues, we expect the draft final Work Plan will protect public health and the environment while moving expeditiously to get the answers we all want as soon as possible. We will review closely the updated Responses to Comments and revised pages of the Work Plan that address our comments as soon as we receive them. We look forward to working with the Navy to finalize the Work Plan and other associated documents and begin the testing component of the radiological assessment effort as soon as possible. If you would like to discuss any of these comments, please contact me at 415-947-4187 or lee.lily@epa.gov. You can also Contact John Chesnutt, Manager, Pacific Islands and Federal Facilities Section, at 415-972-3005 or chesnutt.john@epa.gov.

Sincerely,

Lily N. Lee
Remedial Project Manager
Superfund Division

Attachment

cc: Nina Bacey, State of California Department of Toxic Substances Control
Shane Reese, State of California Department of Public Health
Tina Low, California Regional Water Quality Control Board
Amy Brownell, San Francisco Department of Public Health

USEPA Partial Review of the Draft Final *Parcel G Removal Site Evaluation Work Plan*, which now includes *Appendix B: Sampling and Analysis Plan and Appendix C: Soil Reference Background Area Work Plan*. Hunters Point Naval Shipyard, San Francisco, California, Draft dated November 2, 2018
USEPA Comments, Part 2, dated April 25, 2019

Note: The November 2, 2018, Draft adds the Navy's first responses to the regulatory agencies' comments on the earlier draft Sampling and Analysis Plan (SAP). It also adds Appendix C, which is the Soil Reference Background Area Work Plan. Below are USEPA's final comments that address clarifications about technical details to help improve understanding to the reader, address typographical errors, give more consistency across the document, etc. EPA has also separately sent comments about other issues.[1] Please provide Responses to Comments (RTC's) to reflect revisions that respond to the items below for review and versions of the relevant pages of the Work Plan. EPA has discussed many of these comments with the State of California Department of Toxic Substances Control (DTSC) and the California Department of Public Health (CDPH).

1. **Section 3.2.1.3, Pre-Construction Meeting:** Add the oversight agencies (U.S. EPA, CA DTSC, CA DPH) to the list of attendees of the pre-construction meeting.

2. **Section 3.2, Survey Implementation:** The following bullet points in this section mention field duplicate samples:
   a. Section 3.2.4, 5th bullet
   b. Section 3.2.5.2, 4th paragraph, 6th bullet
   c. Section 3.2.6 8th bullet

   Please note in the Work Plan that EPA and DTSC/DPH will also be taking duplicate samples at some of the sample locations. This is in addition to duplicate samples taken by the Navy's contractor.

3. **Section 3.2.7, Sample Identification:** For duplicate samples taken by EPA, the sample location number "DD" will be given the additional letters "P" and "E" [DDPE].

4. **Section 3.4, Radiological Investigation Design:** In EPA's March 26, 2018, comments (General Comment 20 on Section 4.3.3 of the Draft Work Plan), we recommended starting with a sample density of 25 sample per survey unit. EPA, DTSC, and CDPH recommend using 25 samples per survey unit initially for the following:

   - First 3 Trench Units, each RSY pad or equivalent area
   - First 3 Building Site Soil Survey Units
   - First 1 Survey Unit (statics and swipes) for each building material type (e.g. concrete, wood, drywall)

[1] EPA also provided other comments available at these EPA webpages:
https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.scs&id=0902722&doc=Y&colid=37700&region=09&type=SC and
https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.scs&id=0902722&doc=Y&colid=36987&region=09&type=SC

After that, we should have enough more reliable data to update calculations to generate the appropriate sample density using the MARSSIM approach. Priorities for selecting the first trench units to sample should include likelihood of finding contamination, highest potential variability, representativeness, etc. EPA, CDPH, and DTSC recommend sampling in 25 locations at the following high priority survey units:

a. First 3 Trench Units (TUs), each Radiological Screening Yard (RSY) pad or equivalent soil sorter volume
    i. TU 153 – This trench unit (TU) showed the following characteristics: low variability gamma static data that were inconsistent with gamma scan data; uninvestigated gamma scan exceedance(s); the manhole with highest Cs-137 in sediment located along this TU (which is in the vicinity of former building 364 and the Cs-137 peanut spill; which could lead to a higher probability of finding Cs-137 contamination); five rounds of excavation (which could have provided incentive to falsify to avoid future rounds of excavation); evidence of multiple populations on the Ac-228, Bi-214, K-40 Final Status Survey (FSS) Quintile-Quintile (Q-Q) plots; and Navy identification of falsification.
    ii. TU 98 – This Trench Unit showed these characteristics: low variability gamma static results that were inconsistent with gamma scan data; six rounds of excavation; location along Cochrane Street (where the Navy's Radiological Affairs Support Office suspected historic Cs-137 contamination in storm drains and sanitary sewers); and evidence of multiple populations on the Ac-228, Bi-214, K-40 FSS Q-Q plots.
    iii. TU 103 - This Trench Unit showed these characteristics: low variability gamma static data that were inconsistent with gamma scan data, three rounds of excavation, evidence of multiple populations on the Ac-228, Bi-214, K-40 FSS Q-Q plots, for Ac-228; and the standard deviation exceeds the mean.

b. First 3 Building Site Soil Survey Units (SUs)
    i. Bldg 364 SU 23 - CDPH identified concerns in this survey unit because data showed many exceedances of the investigation level of three standard deviations (sigma) above the remedial goal, a one-year delay in sample analysis, and issues with the FSS systematic (FSS_SYS) data set for Bi-214 and K-40.
    ii. Bldg 364 SU 28 – This SU is the location of former liquid waste transfer system excavation (which could mean a higher probability of finding contamination). Additional excavation was done by Tetra Tech EC Inc. This SU also shows evidence of multiple populations on the Ac-228, Bi-214, K-40 FSS Q-Q plots,
    iii. Building 351A S000B – This SU has strong evidence of multiple populations on the Ac-228, Bi-214, K-40 FSS Q-Q plots. However, it appears that SU R may have been the one where excavation was done as it is surrounded by two other SUs. SU E also has strong evidence of multiple populations on the Ac-228, Bi-214, K-40 FSS Q-Q plots.

5. **Section 3, Soil Investigation Design and Implementation:** Gamma scan results would include radiation from Ra-226, Th-232, and Cs-137. So the MDC for scans will depend on the reference background levels of these three radionuclides. However, previous data collected by Tetra Tech EC Inc., including for reference background, are unreliable. Therefore, for the potentially impacted soil areas (the trench and building site survey units), EPA will need to obtain further information on the reference area data (i.e. soil sample results) to determine if the proposed Scan MDCs for the survey unit are sufficient.

6. **Chapter 3, Soil Investigation Design and Implementation, and Appendix C, Soil Reference Background Area Work Plan:** We understood that at the time of the draft final Work Plan, some details were not ready for inclusion and would be provided later. As discussed on a conference call in November, 2018, below is a more detailed list of what we need from the Navy prior to finalizing the soil reference background study. The draft final only provided example instruments and example MDC calculations. We need the final versions. Please note that we have not completed review of the *Addendum* that arrived April 17, 2019, and we understand that some of this information may be contained in that document.

    a. Gamma Scan and Static Surveys, including of the background reference areas:
        i. Identify the Contractor that will be conducting field investigation/radiological surveys and data collection and submit contractor-specific standard operating procedures (SOPs) for field investigation, including SOPs for all radiological surveys.
        ii. Provide calculations documenting how the minimum detectable counts (MDCs) listed in Parcel G Work Plan Table 3-7 (A Priori Scan MDCs) for gamma walk-over surveys using the RS-700 instrument were determined. For example, Section 3.5.2.2 (Gamma Scan Minimum Detectable Concentration) provides example calculations for the Model 44-20 (3-inch by 3-inch) Sodium Iodide (NaI) detectors, but it does not provide information about the RS-700 system. Note that CDPH provided a technical basis document for documenting how the RS-700 system was calibrated for the gamma scans conducted at Parcel A-1 using the MicroShield modeling program. Such information should be included in the Parcel G Work Plan, as follows:
            1. Modeling used to correlate gamma fluence rates to detector performance/efficiency
            2. Efficiency of detectors using calibration sources
            3. Detection limits for identification of discrete sources versus soil contamination
        iii. Copy of nuclide library including the energy lines that will be used for quantitation of individual radionuclides
        iv. Identify the size of the detectors used for the RS-700 system, the mounting configuration, and information demonstrating how 100% of the land areas scanned will be covered by the RS-700 gamma scan instruments based on the size and mounting configuration.

v. Specify that global positioning system (GPS)/positional data collection will occur during the RS-700 system scanning surveys.

vi. Provide a listing of the static measurement MDCs for the Ludlum 2221 with Model 44-20 NaI detectors and the RS-700 system. Example scanning MDCs were provided in Table 3-7 (A Priori Scan MDCs) but MDCs for statics were not provided. Please note that the soil reference background area work plan calls for 25 samples per reference background area. The laboratory can reliably test to Minimum Detectable Concentrations (MDCs) that are below the ROD RGs. Per MARSSIM, a background reference area is, by definition, a non-impacted area. Therefore a background reference area does not need to be scanned. However, scanning is a wise additional optional precautionary step that can help identify potential signs of contamination. At the stated scan MDC, gamma emitting radiological objects can be detected.

vii. Include a listing of instruments, calibration and MDCs (if different) for gamma scanning of core samples since this may present a different geometry than scanning excavated soils and different detectors may be used.

b. Investigation parameters

i. Revise the Work Plan to include the listing of all radionuclides of concern (ROCs) for some survey units/trench units and buildings based on the Historical Radiological Assessment, Volume II (HRA) per previous comment submittals.

7. **Section 4, Building Investigation Design and Implementation.** Similar to comment 4 about soil above, we recommend first collecting 25 systematic samples at one Survey Unit (statics and swipes) for each building material type, e.g., concrete, wood, drywall, etc. CDPH, DTSC, and EPA have reviewed building history, previously collected data, and other information about Building survey units. We therefore recommend choosing from among these priority survey units to test first using 25 samples per survey unit: Building 351 SUs 7 and 46, Building 351A SUs 7 and 26, and Building 366 SU 62.

8. **Section 4, Building Investigation Design and Implementation.** EPA and the Navy are still addressing basic remedy design and implementation issues related to Chapter 4 of Parcel G Workplan. Therefore, we expected a revised version of this chapter in the future that will address ongoing issues. Meanwhile, EPA is proposing that the Navy use a more current method, ISO-7503, for calculating efficiencies rather than the conventional 4pi geometry method. The ISO-7503 method, as well as MARSSIM, uses the terminology of "4pi;" however, 4pi is calculated by taking into account both instrument efficiency (i.e. 2pi emission rate) and surface efficiency—not 4pi efficiency listed by the instrument manufacturer, as done in the conventional method. EPA will review total efficiency calculations, including radionuclide parent and progenies, in the future, after other larger issues are addressed.

9. **Section 8.5 Air Quality and Dust Control.** We have received more details in the Site-Specific Dust Management Plan and Project Environmental Plan portion of the *Draft Parcel G Removal Site Evaluation Work Plan Addendum*, dated April 17, 2019. We will provide comments separately later.

10. **Appendix C, Section 3.1.3 Reference Area Background Locations.** The off-site Background Reference Area (BRA) is likely to be moved to another less disturbed site. During the February 11, 2019, site walk it was agreed that this change could be made after the Work Plan Appendix C is finalized using the Field Change Request (FCR) process and that this FCR would be submitted to the Regulatory Agencies before sampling of this area is conducted so that Regulatory Agency representatives can be present to observe and collect split samples. Split samples will be collected from approximately 10% of the locations. Also, as discussed during the site walk, it was agreed that the off-site BRA would not be located at or near the bottom of a slope where fallout radionuclides could have been concentrated in run-off and that it would be located in an area that had been undisturbed since the 1940s, based on aerial photograph review and discussion with people familiar with the history of the site. Finally, it is unclear if a second off-site BRA would be selected, as that was discussed during the site walk. Please ensure that the off-site BRA(s) is/are not located at the bottom of a slope and is/in a relatively undisturbed area. Please also ensure that any FCR changing the off-site BRA location is submitted prior to collection of samples at the BRA and that the Regulatory Agencies are notified in time to allow scheduling an observer who will collect split samples. In addition, please ensure that the Work Plan is revised to include detailed procedures for split sampling. Finally, please consider selecting a second off-site BRA.

11. **Appendix C, Section 3.1.3 Reference Area Background Locations.** Please revise the Work Plan to state that if elevated radiological contamination or a radiological object are found during the sampling or gamma scans of a BRA or during sampling, or if any BRA shows any other signs that it is contaminated, then an alternate BRA will be selected.

12. **Appendix C, Section 4.1, Gamma Scan Data Evaluation.** The soil reference background area work plan calls for 25 samples per reference background area. The laboratory can reliably test to Minimum Detectable Concentrations (MDCs) that are below the ROD RGs. Per MARSSIM, a background reference area is, by definition, a non-impacted area. Therefore a background reference area does not need to be scanned. However, scanning is a wise additional optional precautionary step that can help identify potential signs of contamination. At the stated scan MDC, gamma emitting radiological objects can be detected.